

8499

Diag'd. on diag. ch. NO. 1218-2 & 1219

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

## DESCRIPTIVE REPORT

Type of Survey Air Photo. Compilation

Field No. \_\_\_\_\_ Office No. T-8499

### LOCALITY

State Delaware

General locality Atlantic Coast

Locality Cape Henlopen

1943

### CHIEF OF PARTY

Lieut. Comdr. H. G. Crosby

Lieut. Comdr. H. L. Gallen

~~Comdr. Ray L. Schoppe~~

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DATE March 24, 1948

B-1870-1 (1)

8499

## DATA RECORD

T-8499

Quadrangle (II): CAPE HENLOPEN

Project No. (II): 302-b

Field Office:

Chief of Party: F. L. Gallen  
*Ray L. Schappe*

Compilation Office: Tampa, Fla.

Chief of Party: K. C. Crosby

Instructions dated (II III): 3/18/43

Copy filed in Descriptive  
~~Report No. T~~ (VI)  
Div. Photogram. Office Files

Completed survey received in office: 5 Oct. 1943

Reported to Nautical Chart Section:

Reviewed: 1/5/44

Applied to chart No. 379

Date: 5 April, 1945

Redrafting Completed: *22 Jan 1944*Registered: *30 Jan 1948*

Published: 1944

Compilation Scale: 1:20,000

Published Scale: 1:25000

Scale Factor (III): 1.00

Geographic Datum (III): N.A. 1927

Datum Plane (III): L.S.L. 1929

Reference Station (III): Radio, 1932

Lat.: 38°47'24".92(767.6 m) Long.: 75°05'28".820(695.6m) Adjusted  
UnadjustedState Plane Coordinates (VI): *Del. Single Zone*

X = 592,734.74

Y = 287,954.32

Military Grid Zone (VI)

"A"

PHOTOGRAPHS (III)

<u>Number</u>	<u>Date</u>	<u>Time</u>	<u>Scale</u>	<u>Stage of Tide</u>
13333	(not available in Tampa Office) 4/4/43		1:20,000	

Tide from (III): 1943 Tide Tables

Mean Range: 4.2

Spring Range: 5.0

Camera: (Kind or source) USC&GS 9 lens (Focal length  $8\frac{1}{4}$ " )

Field Inspection by: L. C. Jenkins

date: May 1943

Field Edit by: W. Bever, Jr. Topo. Aid

date: Nov., 1943

Date of Mean High-Water Line Location (III):

Projection and Grids ruled by (III) J.C.O'H. & B.R.C. date: 6/4/43

" " " checked by: " " date: "

Control plotted by: Lashington Office

date: -

Control checked by: " "

date: -

Radial Plot by: " "

date: -

Detailed by: C.A.J. Pauw, Prin. Engr. Aid

date: Sept. 1943

Reviewed in compilation office by: J.L. Kidwell,  
J.H.E. Lillmyer, Asst. Photo. Engr.

Jr. Topo. Engr. date: Sept. 1943

Elevations on Field Edit Sheet

checked by: W. Bever, Jr. Topo. Aid

date: Nov., 1943

STATISTICS (III)

Land Area (Sq. Statute Miles); 5.7 miles

Shoreline (More than 200 meters to opposite shore); 7.4 miles

Shoreline (Less than 200 meters to opposite shore); 6.0 miles

Number of Recoverable Topographic Stations established; none

Number of Temporary Hydrographic Stations located by radial plot; 3  
Topographic

Leveling (to control contours) - miles; 6.0 st. mi.

Roman numerals indicate whether the item is to be entered by,

(II) Field Party, (III) Compilation Party, or, (VI) the Washington Office.

When entering names of personnel on this record give the surname  
and initials (not initials only).

Remarks;



## General Procedure in the Production of Topographic Quadrangles for the War Department

7-8499 (Planim. 7-5661)

This quadrangle, together with similar adjoining maps produced under Project C.S. 3028, was prepared by the Coast and Geodetic Survey for the War Department under "General Specifications for War Department Mapping Program" issued about December 1941, in which is incorporated the "Standard of Accuracy for a National Map Production Program" issued by the Bureau of the Budget under date of June 10, 1941.

The general procedure in the production of this and the adjoining quadrangles was:

### PREPARATION OF BASE MAPS

Assembly into quadrangle base sheets by photographic means of previously produced planimetric (7-5661) maps of the area. These maps were compiled by this Bureau from aerial photographs taken in 1933 and were published in 1934 on the scale of 1:20,000. Lithographic prints of the quadrangle base sheets on cloth-mounted paper were furnished to the field parties and similar prints in red ink on celluloid sheets were furnished to the compilation office.

### FIELD SURVEYS

Aerial photography with the Coast and Geodetic Survey nine-lens camera, with airplane and flight crew furnished by the U. S. Coast Guard. The photographs were taken to the scale of 1:20,000.

Ground inspection of the photographs for identification of control points, and classification and clarification of planimetric details on the photographs. The field parties were permitted to make field inspection notes either on the photographs or on the planimetric base sheet.

Contouring by planetable, directly on the photographs or on the planimetric base sheet at the option of the field party. The contouring for this quadrangle was done on the

Supplementary vertical control was established by means of an extensive subordinate level net, furnishing unmarked elevations at road intersections, driveways, and numerous other points identifiable on the photographs.

#### COMPILATION OF MANUSCRIPT

Revision of the planimetric base map from the new photographs and addition of contours and corrections obtained by the field parties. No radial plot was made for this work.

#### FIELD EDIT

Comparison of a copy of the corrected manuscript with the ground. This included inspection for completeness and accuracy as well as the location by planetable methods of additional details, checking of nautical and aeronautical aids to navigation, etc.

Accuracy Tests - Application of systematic horizontal and vertical accuracy tests to check the maps for conformity with the specifications. These tests consisted of comparison of the map position and elevation of selected random points with the true position and elevation as independently determined by standard survey methods.

#### PROCESSING IN THE WASHINGTON OFFICE

Review - Examination of the manuscript for accuracy and completeness of compilation and compliance with specifications, correcting where necessary; addition of military and state grids and other special features; and verification of the general adequacy of the manuscript as a basis for the production of a finished map.

Drafting and Reproduction - Preparation of smooth color separation drawings on 1:20,000 scale on metal-mounted "blue-line" copies of the manuscript. From these drawings, negatives and printing plates were prepared for reproduction of the finished map on the scale of 1:31,680 or 1:25,000.



FIELD INSPECTION REPORT  
QUADRANGLE T-8499  
PROJECT CS-302-B  
F. L. Gallen, Chief of Party

1. DESCRIPTION OF AREA:

The area covered by this quadrangle lies wholly in Sussex County, Delaware. It consists of swamp, farmland, and the Fort Miles Military Reservation, with elevations running up to 70 feet. Fort Miles is located on the Cape Henlopen, sand dune section of the quadrangle. The area south of Fort Miles consists mainly of swamp, drained by a system of ditches and natural drainage, which flow to the Lewes-Rehoboth Canal. An extensive system of ditches, cut by the C.C.C. for mosquito control, covers the entire marsh area. There is very little wooded area in this quadrangle. The farmland on this quadrangle covers only a very small portion of the southwestern corner. Farmland in this section is very well developed and all available land is under cultivation.

2. COMPLETENESS OF FIELD INSPECTION:

The field inspection is thought to be complete. Buildings, churches, cemeteries, roads and trees have all been classified. Only the buildings indicated are to be shown on the map drawing. Buildings circled and not otherwise classified are dwellings. On the Delaware Bay side of the quadrangle numerous factory buildings were not circled but the area covered by the buildings was shown on the photograph. Trails are shown with a red dashed line. Swamp areas are enclosed by a dashed blue line. The drainage to be shown on the completed sheet is shown on the field photo. No detail was shown in the Fort Miles Military Reservation. High water line on the ocean front and the Delaware Bay front was located by L. G. Chambers in May, 1943. High water line and marsh line on inland waters were located by field inspection by the topographer.

3. INTERPRETATION OF THE PHOTOGRAPHS:

It is believed that the photograph for this quadrangle clearly shows all topographic detail with no need for detailed field clarification.

4. HORIZONTAL CONTROL:

The horizontal control for this quadrangle was recovered and pricked on photographs, which were submitted to the Washington Office in May, 1943. *11 Stations. List appended.* 4 Topo. stations { 3 ldmks (fm 567 + fms 524)  
1 topo (fm 524)

5. VERTICAL CONTROL:

There are no first order bench marks in this quadrangle. A third order bench mark was established by this party and pricked on photograph No. 13333. This mark is located on the Coast Guard Reservation

*BM 2, 1943*



grounds about 1.5 miles northeast of Lewes. Supplementary level lines were run over the main roads in this quadrangle to provide sufficient control for the planetable party. The level elevations are shown in black, while planetable elevations are shown in brown. These level lines were run and adjusted by a separate party and were assumed correct as submitted by them, except where elevations were found in error when a tie was made by a planetable party through intermediate lines. Elevations found in error were corrected. All elevations run by the level party are shown in the centerline of the road unless otherwise noted on the photo and may be used on the finished map drawing as ground elevations. Closures over .35 foot were adjusted and over 1.0 foot reran. Very few lines had to be adjusted, as many closures were of such an accuracy that they needed no adjustment.

6.        **CONTOURS AND DRAINAGE:**

Contouring was carried on by a four man planetable party using standard Coast Survey equipment. The first operation in contouring was to establish a line of magnetic declination on the photo. This was determined by orienting along a straight stretch of road near the center of the photo. The declinoire was used to orient the table on following set-ups, where it was not possible to locate the position by inspection. The date and time of day the magnetic declination was observed were recorded on the photo. All contouring was done directly on the photo, and where possible, cultural features were used to locate the contours. Much of the drainage shown on the photo was located by stereoscope or by actual inspection of the drainage of the field. Where located by stereoscope, it was frequently checked in the field by stadia shots or pacing and was found to check very well. It was not found necessary to use the hand level to any extent. Practically all elevations were taken by actual planetable shots since all of the contours ran in the open. On the sand dune section of the quadrangle, numerous elevations had to be spotted and close inspection had to be made to determine the shape of the contours. Due to extensive improvements and buildings inside the Government Reservation, the general trend of the contours is shown. Small closed contours were not shown around "man made" military installations. Due to the above mentioned improvements, the 60 ft. contour on the sand dune may, in the near future, be changed in shape or entirely removed. Practically all of the sand dunes in this area consist of fine sand which is easily moved by wind. All dunes not covered by grass are subject to change in shape by wind action.

7-13.    The items under these headings in the field inspection report do not apply to this area.

14.       **ROAD CLASSIFICATION:**

Roads were classified according to instructions issued by the Army War College, Washington, D. C.

15.       **BRIDGES AND CULVERTS:**

There are no bridges in this quadrangle. Culverts will be classified by the field edit party.

16. BUILDINGS AND STRUCTURES:

All buildings to be shown on the manuscript are circled in red. Buildings not labeled are to be classed as dwellings. Barns, churches, stores and other buildings are labeled. Any building not labeled is to be deleted. The plainly visible factory buildings on the Delaware Bay are not circled.

17. BOUNDARY MONUMENTS AND LINES:

The boundaries of the Coast Guard Reservation and Dock and Fort Miles Military Reservation have been shown on the photo. Political boundaries will be located during the time of field edit.

18. GEOGRAPHIC NAMES:

Geographic Names for this quadrangle are the subject of a special report by A. J. Wraight in Project CS-302-B.

19. JUNCTIONS:

Junctions with T-8498 on the west and T-8502 on the south have been made and are in agreement. This quadrangle is bounded on the north by the Delaware Bay and on the east by the Atlantic Ocean.

20. PHOTOGRAPHS USED:

Photographs used in surveying this area are Nos. 13333 and 13331.

Approved and forwarded:

*F. L. Gallen*  
F. L. Gallen  
Chief of Party

Submitted by:

*Marvin C. Jenkins*  
Marvin C. Jenkins  
Sr. Engineering Aid

PORT MILES, Lewes, Del.

All detail inside this reservation is to be deleted as per instructions from the representative of the Commanding Officer. The Radio Compass station is still in place and permission was granted to show this station. We are requested not to show the new pier which has been constructed on the Delaware Bay side. A contour map, 2 foot contour interval with a datum 2.1 foot below mean sea level, was made in 1941, but extensive changes have taken place since that time. We are requested to run new contours inside of the reservation but are not to show any variations in contour lines which may be caused by man made improvements. Since the fort installations were built extensive measures have been taken to control the drifting sand and contours run at this time will probably be fairly permanent.

*This pier is already shown on Chart 379. No request for its deletion has been received in office since the date of charting the pier*

*GR. 3/28/45*

*P.S. Field Edit Rpt. par. 9 states permission was obtained to retain wharf.*

The fence line enclosing the reservation follows the boundary line of the reservation near the Delaware Bay and the Atlantic Ocean but near the southwest corner of the reservation the fence line cuts diagonally across the corner of the reservation and in this area the boundary lines should be prolonged until they meet in a nearly right angle corner instead of following the fence line.

A number of observation towers have been built outside of the reservation and these towers are not to be shown on the maps. These towers are either of concrete or steel and will make good landmarks and will probably be very noticeable on the photographs. Geodetic Positions have been obtained for these towers and are furnished with the triangulation data. This information is of a restricted nature and is not for general circulation.

Contact the Adjutant of Harbor Defenses of the Delaware, or the Artillery Engineer, or the Area Engineer, U.S. Engineer Dept. Respective phone numbers from gate are 3, 19 and U.S.E.D. The Area Engineer may be called from the outside at LEWIS 2721. Major Rebertson, the Artillery Officer, was the man contacted by Lieut. Fish and the man from whom the above information was obtained.

The Contour Map of the reservation made in 1941 shows the boundary of the reservation and should be forwarded with the photographs.

*See par 19  
of Field Edit Report  
for later authority*

**CONTROL PROJECT 302B  
QUADRANGLE T-8499**

STATION	CLASS	PHOTO NO.	DATE	INITIAL
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**HORIZONTAL CONTROL:-----**

Harbor of Refuge North End, N.D., 1953	B-A	15334	4/29/43	G.R.F.
North Range N., 1910	B-A	15334	4/29/43	L.G.C.
Harbor of Refuge Light House, 1927	B-A	15334	4/29/43	L.G.C.
South Range S., 1910	B-A	15334	4/29/43	L.G.C.
Delaware Breakwater W. end, N.D., 1933	B-A	15334	4/29/43	L.G.C.
Delaware Breakwater (Old Tower) Front				
Range L. E., N.D. 1909	B-A	15334	4/29/43	L.G.C.
Delaware Breakwater Light House, 1927	B-A	15334	4/29/43	L.G.C.
Front S. Range, 1906	B-A	15334	4/29/43	L.G.C.
Rear S. Range, 1906	B-A	15334	4/29/43	L.G.C.
Radio, 1938	B-A	15334	4/30/43	L.G.C.
- Consolidated Fish. Tank (USCA) 1943	B-A	15334	5/5/43	L.G.C.
Harbor of Refuge Front Range West, 1906, D.K.	L-A	-----	4/20/43	G.R.F.
- Rear East Range, 1901	L-A	-----	4/29/43	L.G.C.
South Range W., 1910	L-A	-----	4/29/43	L.G.C.
- Cape Henlopen Day Beacon, N.D., 1906	L-A	-----	4/20/43	G.R.F.
Lewis Marine Hospital Flagstaff, 1896	L-A	-----	4/20/43	G.R.F.
Lewis Life Saving Station, 1909	L-A	-----	4/20/43	G.R.F.
Cape Henlopen Light House, 1927	L-A	-----	4/20/43	G.R.F.
Harbor of Refuge Light House, 1909	L-A	-----	4/20/43	G.R.F.
- Delaware Breakwater Light House, 1842	L-A	-----	4/20/43	G.R.F.
Cape Henlopen Light House, 1837	L-A	-----	4/20/43	G.R.F.
- Delaware Breakwater Light House, 1872	L-A	-----	4/20/43	G.R.F.
Cape Henlopen Sn. 1842	L-A	-----	4/20/43	G.R.F.
Delaware Breakwater Range L. E., 1877-82	L-A	-----	4/20/43	G.R.F.
- Ice Breaker, W. End, 1942	L-A	-----	4/20/43	G.R.F.
- Breakwater, E. End 1842	L-A	-----	4/20/43	G.R.F.
- Rev., 1920	L-A	-----	4/20/43	G.R.F.
- North range West, 1918-1929	D-A	-----	4/20/43	G.R.F.

**VERTICAL CONTROL:-----**

See next page.



CONTROL PROJECT 302B  
QUADRANGLE T-8499

STATION	CLASS	PHOTO NO.	DATE	INITIAL
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VERTICAL CONTROL CONT:-----

Lewes Tidal #1	R-A	13334	4/29/43	L.G.C.
Lewes Tidal #2	R-A	13334	4/29/43	L.G.C.
Lewes Tidal #13	R-A	13334	4/29/43	L.G.C.
Lewes Tidal #7	L-A	-----	4/22/43	M.C.J.
Lewes Tidal #27	L-A	-----	4/22/43	M.C.J.
7 U.S.E.	L-A	-----	4/22/43	M.C.J.
Lewes Tidal #16	D-A	-----	4/22/43	L.W.H.
Lewes Tidal #19	D-A	-----	4/22/43	L.W.H.

A B.M. was set by this party on Photo 13333 *BH 2, 1943*

Lieut. Comdr. F. L. Gallen  
Chief of Party

Joe N. Henningsen, Prin Photo. Aid.  
In charge sub-party.



**FIELD INSPECTION  
PROJECT CS-663**

**BUILDINGS**

B - Barn  
Bldg - Building  
Bo Ho - Boat House  
Ch - Church (give name)  
Co Ho - Court House (give name)  
PoO - Post Office (give name)  
Sch - School (give name)  
Hos - Hospital (give name)  
RR Sta - Railroad Station  
Sto - Country store or  
gas station  
P Sta - Power Station

**BOUNDARIES**

BDY - Boundary  
F B - Fire Break  
HDO - Hedge  
Park - Park  
Cem - Cemetery  
Co - County

**LANDMARKS**

FT - Fire Tower (give name)  
TT - Transmission Tower  
RT - Radio Tower or mast  
Air Bn - Airway Beacon  
Ba - Non-lighted aid to  
navigation  
Lt - Lighted aid to  
navigation  
Tk - Low tank  
Tk elev - Tank elevated on  
structure  
Stk - Stack

**GENERAL**

X - delete; except where it  
pertains to elevations.  
Use only the abbrev. listed  
on this page. Do not make  
up abbreviations.

**SHORE LINE**

HWL - Mean high water; fast land  
LWL - Low waterline  
LL - Marsh shore line  
M - Marsh  
MW - Marsh grass in water  
Dk - Dock  
Pier - Pier  
Se W - Sea Wall  
Bhd - Bulkhead  
Jet - Jetty  
Dol - Dolphin  
Pile - Pile  
S - Sand  
Mud - Mud  
Rk - Rock or rocky  
Sty - Stony  
Cons - Concrete  
Wo - Wood  
Blf - Bluff  
Dune - Dune

**STREAMS AND PONDS**

D - Largest ditches only  
DX - Small ditch (delete)  
IS - Intermittent stream  
PD - Probable drainage  
Cr - Creek  
Ca - Canal  
Cv - Culvert  
Lew - Levee  
Dam - Dam  
P - Pond  
IP - Intermittent pond

**VEGETATION**

Gr - Grass  
Sw - Swamp  
Cy Sw - Cypress Swamp

# STANDARD SYMBOLS FOR CLASSIFICATION

First Symbol	Max. Load	Unlimited
Weight	5 tons	
	10 tons	25 tons
	25 tons	100 tons
	10 tons	25 tons
	10 tons	5 tons
	5 tons	1 ton
	Light vehicles only	

## Second Symbol

Vertical Clearance	A - over 14 feet
	B - over 13 feet
	C - over 12 feet
	D - over 11 feet, etc.

## Third Symbol

Horizontal Clearance	A - over 16 feet
	B - over 17 feet
	C - over 18 feet
	D - over 19 feet, etc.

## Fourth Symbol - Year of Classification

## WOODS AND BRUSH

### TYPE

D	Deciduous
E	Evergreen
Cy	Cypress

### CONCEALMENT

Z	Trees 10 feet or more in height, and thick enough when in foliage to conceal troops and vehicles.
Y	Brush and undergrowth thick enough to impede foot troops and conceal troops lying down.
X	Scattered trees not thick enough to conceal troops.
W	Scattered brush not thick enough to conceal troops.

### PHYSICAL FEATURES

HG	Higher ground - usually appears in light tone on photograph; either wooded or cultivated area; may be scrub trees or brush. (usually not symbolized on photographs.)
LG	Low areas - generally appears dark on photograph; becomes swampy during rainy season; often covered with dense growth of brush.
SW	Swamp - ground covered with water or boggy most of the time; lower in elevation than LG; wooded and/or brush.
M	Salt marshes

NOTE: The above areas are not outlined but sufficient notes are made on each photograph so that the variation in tones can be correctly interpreted in the office

## ROAD CLASSIFICATION FOR MAPS OF ALL SCALES

CLASS	LABEL	STRUCTURE	LOADING
1	Dependable hard-surface heavy duty road.	Concrete, asphaltic concrete bituminous Macadam, H-15 type structures.	Will bear heaviest loads with little maintenance.
2	Secondary, hard-surface all-weather road.	Surface-treated, oiled gravel, waterbound Macadam, structures generally lighter than H-15 but sturdy.	Will bear fairly heavy military loads in all weather if maintained.
3	Loose-surface graded, dry-weather road.	Gravel or stone surface, stable material, selected sand-clay, etc. Drained and graded.	Will bear light military loads in good weather.
4	Unimproved road.	Graded and drained earth, with very light structure.	Generally unsuitable for military loads.
4U	Truck road	Woods roads, farm roads, etc. over which a standard gage vehicle can be driven.	
5	Trail	(Horse trails, foot trails, etc.)	

Roads with more than two (2) lanes are indicated by note along road, e. g. 3 LANE. Change in lanes shown by tick at point of change. Main roads have two lanes unless otherwise marked.

Private roads are designated by the letter P after the road classification.

### **WOODS-CONCEALMENT CLASSIFICATION**

Class-A: Trees over 10' high and thick enough to hide troops.

Class-B: Brush thick enough to hide troops but dense enough to impede progress.

Class-C: Scattered brush thick enough to hide troops but not thick enough to impede progress.



COMPILATION REPORT  
TO ACCOMPANY  
SHEET NO. T-8499

26. CONTROL

The control on this sheet with that of the adjacent sheets was sufficient to insure a plot that should meet the accuracy requirements.

Station "Lewes Life Saving Station, 1909" was not recovered in the field but is shown on the sheet. If this station no longer exists, it should be removed from the compilation. ✓

It is believed that the plotting on the photographs of "Delaware Breakwater L.H." and "Delaware Breakwater West End Light" have been picked incorrectly on the photographs. The 40 m. measurement on the picking card for the latter is possibly in error. A distance of 40 feet would appear to be more correct. These stations should be investigated in the field. *See paragraph 4 Field Edit Report.*

27. RADIAL PLOT

The main radial plot which was run by the Washington Office is discussed in the compilation report for Sheet T-8502.

28. DETAILING

Large paper distortion and limited photograph coverage made cutting in of additional radial points, necessary for detailing, difficult. Only one photograph center, (No. 13333), falls within the tracing limits of the sheet. Photograph No. 13334, whose center falls near the western limit of the quadrangle, proved the most rigidly fixed by triangulation. Third cuts on the additional radials were obtained from photograph No. 13332, but these were of doubtful accuracy. The radial point on the Harbor of Refuge breakwater was cut in from two photographs only.

The photographs were clear and in general the field inspection of the area outside of the military reservation was satisfactory.

The exact position of the shoreline in the portion of Fort Miles Military Reservation was difficult to determine. The shoreline along the west side of Cape Henlopen was taken directly from the field print. Stereoscopic examination of this shoreline indicates that error in the field work is possible. The mud flat probably floods at high water.



Roads, railroads, and buildings within the military reservation should be checked very carefully by the field editor. Those buildings of a temporary nature should be deleted from the map.

Although the Commanding Officer at Fort Miles requested that none of the cultural features be shown on the map, it was thought that, (as the sheet is being kept confidential), that these features should be shown and the Washington Office should select the features to be shown on the final map.

Some of the vegetation was outlined with broken lines where they would cause no confusion to the smooth draftsman. These lines were used in place of scalloped lines where there was a lot of small irregularities in the limits of the vegetation.

#### 29. SUPPLEMENTAL DATA

The only maps furnished by the field party, was a three sheet set of contour maps prepared by the U. S. Engineer Office, Philadelphia, Penna.. These maps, on a scale of 1"=200', showed very little besides contours, and as the order of their accuracy was not known, they were not used by this office in the detailing.

#### 32. DETAILS OFFSHORE FROM THE HIGH WATER LINE

The structures shown on the sheet as a series of small circles off the upper end of Harbor of Refuge breakwater should be investigated by the field party and labelled correctly, and, if necessary, should be redrafted to show a more proper symbol or outline. *Ice fenders (Paragraph 10, Field Edit Rept.)*

#### 34. LANDMARKS AND AIDS TO NAVIGATION

The geographic position of topographic station "Radio Direction Finder, East Pole, 1943" is as follows: *Topo. sta. only*

Lat. : 38° 47' 1021 M.  
Long.: 75° 05' 664 m.

This station should be investigated in the field and if found suitable for a landmark, a Form 567 should be submitted to the Washington Office. *See paragraph 11, Field Edit Report.*

#### 44. COMPARISON WITH EXISTING TOPOGRAPHIC QUADRANGLES

In comparing the sheet with U. S. C. and G. S. map T-5661, compiled in 1933 from air photographs, and U.S.G.S.

Rehoboth quadrangle, (Edition of 1928), the following changes are most notable. All others are of very minor importance.

- (a) Extensive developments have been made within Fort Liles reservation.
- (b) Some change in shoreline, especially on the extreme tip of Cape Henlopen.
- (c) Lake Gordon is now depressed mud flat rather than a lake.
- (d) One new large pier has been built and an old one now is in ruins.

45. COMPARISON WITH NAUTICAL CHARTS

An accurate comparison with U.S.C. and G.S. Chart 1219, published February 1932, on a scale of 1:80,000, could not be made due to the large scale difference.

Respectfully submitted,

*Cornelius A. J. Pauw*  
Cornelius A. J. Pauw  
Prin. Photo. Aid

Forwarded by:

*Kenneth G. Crosby*  
Kenneth G. Crosby,  
Chief of Party....



FIELD EDIT REPORT  
QUADRANGLE T-8499  
PROJECT CS 302 B  
Ray L. Schoppe, Chief of Party

1. DESCRIPTION OF AREA:

See field inspection report.

2. COMPLETENESS OF FIELD INSPECTION:

See field inspection report, also see item 47 of this report.

3. INTERPRETATION OF THE PHOTOGRAPHS:

Photograph 13334 was used in checking the shoreline along the west side of Cape Henlopen and to check level elevations. No shoreline discrepancies were found on the compilation.

4. HORIZONTAL CONTROL:

The Lewes Life Saving Station, a triangulation station is still standing and the Delaware Breakwater West End Light, 1933, which is a triangulation station are correctly shown on the compilation.

*See recovery card (G.R. Fish, 1943) by field inspection party which states that a new Coast Guard Station has been built south of the old one, and the old station (1906) has therefore been lost.*

5. VERTICAL CONTROL:

See field inspection report.

6. CONTOURS AND DRAINAGE:

Except for the extreme southwest corner of the quadrangle, contours on this sheet show a large dune area in the shape of an inverted L. Prior to 1943 this large dune moved in a southwesterly direction about 8 linear feet a year. Except for the most westerly and southerly ends, the major portion of this dune area has been stabilized by reseeding with drought-resistant grasses and by the erection of sand fences at right angles to the prevailing wind direction.

Progressively the rate of change increases with an increase in elevation, hence the 40 foot contour will change shape more rapidly than the 20 foot contour, and the "60" more rapidly than the "40". However it is believed the elaborate system of sand traps constructed by the army engineers will decrease this shifting to a minimum and will, in time, bring further movement to a standstill.

No part of the intricate system of mosquito control ditches in this quadrangle have been marked for deletion. Inspection reveals these ditches to be about 4 feet in width and approximately 2 feet in depth, some of which contain water. Though small, these ditches are very stable, the only apparent changes being a tendency of the ditches to decrease in depth from the yearly additions of decaying organic matter. Ultimately these ditches will fill up, however this process of fill is hardly measureable except over long periods of time.

To be consistent with other quadrangles it is recommended the smaller ditches be deleted with only the natural drainage of major ditches shown. Clarifying notes have been made on the compilation.

7. MEAN HIGH WATER LINE:

The mean high water line along the western shore of Cape Henlopen was inspected on photograph 13334 and later compared with the compilation. Except for minor differences the shoreline checked quite well and is considered adequate. The mud flats shown will flood at higher high water.

8. LOW WATER LINE:

Not inspected during field edit.

9. WHARVES AND SHORELINE STRUCTURES:

Permission to retain the new army wharf, shown on the compilation, was given by the post commander of Fort Miles. Other structures were investigated and found to be adequate.



10. DETAILS OFFSHORE FROM HIGH WATER LINE:

The structures shown at the north end of Harbor of Refuge Breakwater are ice fenders and are adequate as shown.

11. LANDMARKS AND AIDS TO NAVIGATION:

Three landmarks and six non-floating Aids to Navigation are being submitted for charting on form 567. The Radio Direction Finder, East Pole, an H. & T. station, was not considered prominent enough to show as a landmark. *H&T card made (LTS)*

12. HYDROGRAPHIC CONTROL:

~~See field inspection report.~~ *Several prominent objects located as topographic relations in addition to the triangulation.*

13. LANDING FIELDS AND AERONAUTICAL AIDS:

There are no landing fields or aeronautical aids within the limits of this quadrangle.

14. ROAD CLASSIFICATION:

Roads were classified according to the instructions issued by the Army War College, Washington, D. C.

15. BRIDGES:

There were no bridges in this quadrangle.

16. BUILDINGS:

Except for two groups there were no farm buildings within the limits of this quadrangle. All buildings along the shoreline, outside of Fort Miles, are part of fishing packing, or manufacturing companies, hence classifications of buildings was not necessary within this quadrangle. There are no public buildings.

17.

BOUNDARY MONUMENTS AND LINES:

The political sub-division of Sussex County was added by the field edit party. Other boundary lines, added by the field inspection party, have been checked by the field edit party.

18. GEOGRAPHIC NAMES:

See field inspection report.

19. Fort Miles:

It was noted in the field inspection report that the Post Commander of Fort Miles requested all structures within the reservation be deleted. However, permission was obtained to show all non-tactical structures if the post engineers were permitted to review the sheet for deletions. The request was complied with and the resulting non-tactical structures are shown: Roads, railroad spurs, and various types of buildings. All tactical structures were deleted.

Non-tactical maps offered for temporary use by the post engineers were used to supplement field work within the reservation. Three fire control towers, suitable for charting as landmarks, were omitted because of their tactical value.

20. Questions, notes, and discrepancies referred to the field edit party in the compilation report, (items 26, 28, 32, and 34), have been checked by the field edit party. Suitable notes bearing on these discrepancies have been noted on the compilation and under the proper item in this report.



21 - 45. Not applicable to this report.

46. METHODS:

This compilation was field edited on the chart paper print and later transferred to the Whattman paper print. Discrepancies not covered by suitable symbols were noted on the compilation by a sentence and arrow to the point. All symbols used are standard topographic symbols except that a green X was used to show deletions and limits of deletions and a tick mark used to show limits of deletions and points of change in road classifications. The following color scheme was used:

Deletions - - - - - Green  
Additions, classifications, names,  
notes .@ - - - Black  
Water Culture - - - - - Blue  
Political Boundaries - - - - - Violet

47. ADEQUACY OF THE COMPILATION:

Except for known deficiencies such as classifications of roads, dwellings, and public buildings, and the additions of new structures, the compilation of this sheet was complete and adequate.

48. ACCURACY TESTS:

Horizontal: See field edit reports for quadrangles T-8498 and T-8502.  
Vertical: See field inspection reports for quadrangles T-8498 and T-8493 under item 6.

Submitted by:

*Wendell Bever*

Wendell Bever, Jr. Topo. Engr.

Approved by:

*Ray L. Schoppe*

Ray L. Schoppe,  
Chief of Party

DEPARTMENT OF COMMERCE  
U.S. COAST AND GEODETIC SURVEY

## LANDMARKS FOR CHARTS

**TO BE CHARTED** } **STRIKE OUT ONE**

**TO BE CHARTED**

**Georgetown, Delaware**

November 30, 1943

I recommend that the following objects which have ~~(xxxxxx)~~ been inspected from seaward to determine their value as landmarks, be charted on ~~(detached from)~~ the charts indicated.

The positions given have been checked after listing. — C. H.

**Ray L. Schoop**

**Chief of Party.**

[illegible]

This form shall be prepared in accordance with 1934 Field Memorandum, "LANDMARKS FOR CHARTS." Positions of charted landmarks and nonfloating aids to navigation, if redetermined, shall be reported on this form. The data should be considered for the charts of the area and not by individual field survey sheets. Information under each column heading should be given.



DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

Sheet T-8499

TO BE CHARTED  
TO BE DELETED

STRIKE OUT ONE

## LANDMARKS FOR CHARTS

PERMANENT NON-FLOATING AIDS TO NAVIGATION

Georgetown, Delaware

November 30, 1943

I recommend that the following objects which have ~~(have not)~~ been inspected from seaward to determine their value as landmarks, be charted on ~~(deleted from)~~ the charts indicated.

The positions given have been checked after listing. - C. H.

Ray L. Scheppe

Chief of Party.

GENERAL LOCALITY	NAME AND DESCRIPTION	POSITION						METHOD OF LOCATION	DATE OF LOCATION	HARBOR CHART	INSHORE CHART	OFFSHORE CHART	CHARTS AFFECTED
		LATITUDE		LONGITUDE									
		0	1	D. M. METERS	0	1	D. P. METERS						
Cape Henlopen, Delaware	Delaware Breakwater (A Delaware Breakwater L. H.)	38 47		1513.8	75 06		30.0		X	X		1278 1219 411	
	Delaware Breakwater West End (A Delaware Breakwater West End Light)	38 48		40.0	75 07		38.4		X	X		" 411	
	Delaware Breakwater West End Light	38 48		1598.0	75 05		820.1		X	X		" 411	
	Harbor of Refuge (A Harbor of Refuge Lighthouse)	38 48		1699.9	75 05		6.3		X	X		" 411	
	Measured Mile Lower Range Front (A South Range East)	38 48		1700.2	75 05		844.6		X	X		" 411	
	Measured Mile Upper Range Front (A North Range East)	38 49		1492.4	75 06		334.4		X	X		" 411	
Harbor of Refuge North End (A Harbor of Refuge North End)	Harbor of Refuge North End	38 49		1754.3	75 06		3.8		X	X		" 411	
	West Light, Outer Breakwater												
N. B.: Positions above were sealed; G.P.'s were not available to this office													

This form shall be prepared in accordance with 1934 Field Memorandum, "LANDMARKS FOR CHARTS." Positions of charted landmarks and nonfloating aids to navigation, if redetermined, shall be reported on this form. The data should be considered for the charts of the area and not by individual field survey sheets. Information under each column heading should be given.

	Remarks	Decisions
1		U.S.G.B.
2		
3		
4		
5		387750
6		"
7	Now a low, swampy area; no longer a pond	" U.S.G.B.
8		"
9		"
10		387751
11		"
12		"
13		"
14		"
15		" U.S.G.B.
16		"
17		"
18		"
19		388750-51
20		"
21		"
22		
23		
24		
25		
26		
27		



# GEOGRAPHIC NAMES

Survey No. T-8499

CAPE HENLOPEN quadrangle

Name on Survey

	A. On Chart No.	B. On previous survey No.	C. On U. S. quadrangle Maps	D. From local information	E. On local Maps	F. P. O. Guide or Map	G. Rand McNally Atlas	H. U. S. Light List	K.
Delaware	✓		✓						1
Atlantic Ocean	✓		✓						2
Sussex County	✓		✓						3
Delaware Bay	✓		✓						4
Cape Henlopen	✓		✓						5
Fort Miles Military Reservation			✓						6
Gordon Pond	✓	dry	✓	?					7
Sand Hill	✓		✓						8
Rehoboth Flats	next to	Quadrangle	✓						9
Wolf Neck	✓		✓						10
Wolf Glade	✓		✓						11
Gills Neck	✓		✓						12
Flat Sands	✓		✓						13
Breakwater Harbor	✓		✓						14
Lewes and Rehoboth Canal	✓		✓						15
Lewes Coast Guard Station	✓		✓						16
Consolidated Fisheries	✓		✓						17
Fish Products Co.	✓		✓						18
Harbor of Refuge	✓		✓						19
Delaware Breakwater			✓						20
Overfalls Light Ship		(if shown)	✓						21
Lewes			✓						22
									23
									24
									25
									26
									27

Names underlined in red approved  
by L. Heck on 1/26/44

## RECORDS

Between January, 1942 and July, 1944, this Bureau completed 323 quadrangles. These maps have been published, or are in the process of being published on scales of 1:31,680 or 1:25,000. This series of quadrangles includes a land area of approximately 15,000 square miles. Incident to this work, a considerable volume of survey records and data has accumulated which will be filed for future reference. This material is filed as follows:

### Registered and Filed in the Vault.

Cloth-mounted copy of the published quadrangle.

Black and white cloth-mounted copy of the published quadrangle at 1:20,000 scale. This copy is filed to preserve original survey detail shown on the manuscript at 1:20,000 scale which may not have been shown on the published sheet. For woodland, refer to the published quadrangle for the finally adopted outlines.

Descriptive Report.

### Filed in the Photogrammetric Division.

Field inspection photographs.

Contoured photographs (on which planetable contouring work was performed.)

Field edit sheet.

Descriptions of recoverable topographic stations (Form 524), filed in Review Section.

Supplementary traverse and level records.

Field notes, computations, lists of positions, and tabulations of results of horizontal and vertical accuracy tests.

Reproduction proof.

Correction sheet (copy of quadrangle showing in red changes to be made when next printed.)

Check lists of work performed on each sheet in the Washington Office during review, drafting, edit, and reproduction.

Copies of specifications and all instructions to field parties and field offices.

Filed in Reproduction Branch.

Glass negatives of the color separation drawings.

Filed in the Library.

Special report on office work by B. G. Jones, 1944.

Season's report on field work by Commander F. L. Gallen, 1944.

Season's report on field work by Commander R. L. Schoppe, 1944.

Delivered to the Army Map Service in accordance with the contract.

Film negatives and film positives of the color separation drawings.

All color separation drawings.

A correction sheet consisting of a copy of the first edition of the quadrangle with notes in red indicating changes desirable at the next printing.



## DIVISION OF CHARTS

### SURVEYS BRANCH

#### REVIEW OF AIR PHOTOGRAPHIC SURVEY T- 8499

Cape Henlopen, Delaware. QUADRANGLE

This quadrangle manuscript has been examined for completeness, accuracy, and conformity with the specifications. It is adequate for smooth drafting, reproduction and publication. Revisions found to be necessary in this office are discussed on the next page.

#### Horizontal and Vertical Accuracy

No accuracy tests for this sheet.

(Field Edit reports refers to tests in T-8498 and T-8502. This report was not available at time of registration. LTS)

#### Previous Surveys

This manuscript has been compared with the following previous topographic surveys of this Bureau and other agencies. This map is satisfactory to supersede the previous surveys over the common area.

T- 226	1845	1/20000	
1503	1882	1/20000	
2633	1903	1/10000	
5661	1939	1/20000	
U.S.G.S. Rehoboth	15'	1928	1/62500 (See 44, Comp.Rept.

#### Comparison with Nautical Charts Nos. 1219 1939 1/80000

The manuscript has not been applied to the charts at the date of this review. The following comments are pertinent to the compilation and correction of nautical charts: Two new landmarks have been added since publication of the chart; one new army wharf has been added in conjunction with the Fort Miles Military Reservation within the last few years.

~~Survey T-8499 has not been applied to charts at the time of this review.~~

The New Jersey-Delaware state line was not located by the field edit party. The reviewer added the line from information gathered from the "Supreme Court Decision, 1934", which gave positions in referende to various lights, which were sufficient for plotting purposes.

The above report is a compilation from reviewer's notes by L.T. Stevens. Four topographic stations lie on the map area, but only two forms 524 were filed. The other two were made at time of registration in order to have the full suite on file. Ten extra forms 524 were found on file <sup>under 7242</sup> at the time of registration (5 hydrographic, 5 bench marks established by planetable, Ship Cowie, 1945). A search revealed that one (CUP) is plotted on H-7035, and the others on T-6995a (shoreline) on file in the vault. The H & T cards were re-labeled for proper filing.

Reviewed L. H. Stewart By \_\_\_\_\_  
under direction of <sup>5 Jan. 1944</sup> D. H. Benson

**Inspected by B. G. Jones**

**Examined and approved:**

**Chief, Surveys Branch**

Chief, Topography Section

Chief, Div. of Charts

Chief, Div. of Coastal  
Surveys

## NAUTICAL CHARTS BRANCH

SURVEY NO. 8499

### Record of Application to Charts

[illegible]

**M-2168-1**

**A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.**